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II. PREVOCATIONAL INDUSTRIAL TRAINING IN THE SEVENTH AND EIGHTH GRADES

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INTRODUCTION

The general content and method of this report was determined by the Secretary of the National Society for the Study of Education. He specified that it should be an "account of what has actually been accomplished" in prevocational industrial training in the seventh and eighth grades—that this accomplishment should be shown (*a*) by "a history descriptive of the organization, work, and results" in Indianapolis; (*b*) "by comparing the work of the Indianapolis schools with that of Boston (North Bennett Street Industrial School), Cleveland, St. Paul, and Newark, N.J."; (*c*) "by an interpretation of the type in terms of a statement of the way in which it meets the needs of the educational situation."

INDIANAPOLIS

A more extended report than can be made here may be found in the *Proceedings of the Western Drawing and Manual Training Association*, May, 1911.

Briefly, this program was started by Dr. C. N. Kendall, then superintendent of schools, in the department of one school. (In Indianapolis all seventh and eighth grades are organized on the department plan.) This program was started as an experiment to determine if the educational needs of a body of seventh- and eighth-grade boys and girls, made up largely of the non-book-minded, could be more fully met by a course of school work consisting of activities fundamental in the industries for one-third to one-half of the school time and of book-study for the balance of the time. The activities and the book were to be so related that the

one should support and vitalize the other, but in a way to retain all the values that we have been accustomed to believe inhere in the inherited book curriculum.

Character.—This "semi-industrial" course of study is, and is not, "vocational."

It is not vocational, in that no effort is made to have the pupils choose a specific line of work with the purpose in view of going into that as a business after they leave school. All the boys follow the same course of industrial work and all the girls the same course of industrial work. Boys and girls recite in separate classes except in the subjects that do not relate to the "activities." The purpose is to make the industrial work broad in its scope, but to carry each activity far enough to give an opportunity for the acquisition of sufficient skill to give satisfaction to the worker. On completing this course the pupils have the same opportunity that the graduates of other grammar schools have of entering either of the two high schools.

This course, while not vocational in the sense that it involves an early choice of a life-work, is vocational in at least three senses:

1. It is vocational in the sense that the methods of work followed in the various industrial activities are those followed in up-to-date industrial concerns, and the tools used are those used today in these industries. The mechanical habits and the industrial points of view would, it is assumed, "carry over" into similar occupations outside the school.

2. It is vocational in the sense that the commercial standard of quality in the product is made the school standard of quality. This standard, however, is kept in a subordinate place, as the product in school is an educational means, not a money-making end.

3. The semi-industrial course is vocational in the sense that through it the pupils gain a first-hand knowledge of the elements of various occupations and learn something of the possibilities and of the outcome of these occupations. They should become more intelligent in their final choice of an occupation. A part of the time devoted to industrial work is given up to repair work and to making things used in the schools. Several hundred dollars a year are saved to the school funds in this way. A part of the time is given to making things for personal use or for sale. The making of these things is not an "extra" but is made a part of each line of work.

Motives.—The new plan of study not only involved industrial activities to meet the tastes and aptitudes and possible later economic needs of pupils, but it involved also a more varied appeal to interests and furnished a greater variety of motives. Any interest or motive that will keep a boy or girl hard at work is considered legitimate.

Teachers.—The teacher is a most important factor in the semi-industrial school problem. The school training of a majority of teachers unfits them to deal with a course of work based on practical application and with an educational process in which the pupil's point of view, tastes, aptitudes, and capacities are to take precedence over her own. The shopmen, the sewing-teachers, and the cooking-teachers have all had some work in the "trades," but not as much as is desirable. The academic teachers are all conscious of the need of relating the book to the activity, and some progress is being made. Some teachers have confessed an inability to adapt themselves to the new program and they have been replaced by others. On the other hand, this new work has appealed strongly to some teachers. It has opened up a new field of usefulness to them, and they have been glad to take summer courses in order more adequately to fit themselves to take up this work.

Inasmuch as the central idea of this semi-industrial program is that the "activities" are an inherent part of the course and not an "extra," it follows that the teachers in charge of the "activities" and the teachers in charge of the books shall form one body. It also follows that not as many book teachers are needed. This year one "book" teacher has been dispensed with in each department by giving to one teacher, specially trained in each subject, the sewing and girls' artwork. This teacher is also competent to teach one or more other subjects. It would be an ideal arrangement to have the teacher of English also teach the printing. However, no English teacher has had practical printing experience.

Pupils.—Almost exclusively, the pupils are of the seventh and eighth grades. The course is not optional in the schools in which it has been placed. No pupils have asked for transfer to buildings where the "book" courses prevail. One school is so situated that it can receive pupils from other buildings. From five to fifteen such boys are received each term. So far the girls have preferred to stay at the home school.

A few overaged boys from the sixth grade have been advanced to the seventh-grade semi-industrial work. They are able to maintain their advanced standing.

Curriculum.—

SEMI-INDUSTRIAL SCHOOLS

(Departmental)

Seventh and Eighth Years

The following general program is supplemented by a more definite statement regarding the different subjects.

I. THEORY

Subject	Number of Exercises per Week	Minutes per Week
English	..	240
1. Composition (dictation)	..	..
2. Reading	..	..
3. Spelling	..	..
Word-study	..	..
4. Grammar	?	..
Mathematics	4	120
Geography, history, civics	3	90
Hygiene	1	30
Penmanship	?	..
Music	..	60
		540

II. PRACTICE

(A) Boys	..	490
1. Shop	..	..
(*a*) Benchwork; (*b*) mechanical drawing and designing (90 minutes)	..	..
2. Printing	..	..
3. Iron-work	..	..
(B) Girls	..	490
1. Home economics	..	..
(*a*) Cooking; (*b*) housekeeping; (*c*) sewing; (*d*) cleaning and dyeing of textiles; (*e*) weaving; (*f*) mechanical drawing and designing (90 minutes)	..	..

III. STUDY, ETC.

Study	10	300
Opening exercises	5	50
Physical exercises	3	45
Recesses	5	75
		465
Total minutes in week		1,500

Notes on the Theory Part of the Semi-Industrial Program

ENGLISH

1. The time allotted to English may be divided so as to meet local needs.

2. Some reading should be done in connection with the industrial work, during the reading periods, in "Shop" and "Home Economic" time, and at home. Books should be read and discussed which throw light on the general industrial problem, which give information on the various available occupations, and which deal with specific materials used by the pupils.

3. The words for spelling should be not far in advance of the immediate needs of the pupils.

4. Grammar should be continued from the sixth grade incidental to composition. Special lessons should be given only as needed.

MATHEMATICS

1. The course of study laid down for the regular schools will be followed. The material for examples will, however, be drawn as far as possible from the work actually going on in the shop, sewing-room, and kitchen.

2. Shop records for labor time, quantity and cost of material, etc., will be kept under the direction of the industrial teachers.

3. Bookkeeping will be taught to the extent that it is actually needed in the conduct of the shop, sewing-room, and kitchen.

GEOGRAPHY AND HISTORY

Without neglecting the course of study laid down for the regular schools, the geography and history of industrial and commercial activities should be emphasized in the general reading and in the periods devoted to these subjects.

PENMANSHIP

Classes should be organized for those who need this work.

ACCESSORY

An excursion should be taken by each pupil at least once each term to a place where a phase of the world's work may be observed.

Pictures and lantern slides should be used for illustrations.

To interrelate the book and the activity is not easy. Some progress is being made. At present the heads of the departments of art, domestic science, and manual training are at work upon plans that promise well.

Guidance.—A graduate of one of the semi-industrial schools has the same opportunity as the graduates of other schools have of entering the high schools, either the Technical or the English-Latin. More guidance should be given all grammar-school graduates in their selection

of high-school courses than is at present given in Indianapolis, and more assistance should be given in entering industrial life. This field of choice the coming term, for the graduates of these semi-industrial schools, will be limited in a conference between the principals of the high schools and the principals of the grammar schools.

Results.—1. The plan being tried this year of giving advanced work to graduates of these semi-industrial schools at the home school is not proving a success. The classes returning for this work have in general been too small for economical handling, and it has been found that the elementary-school equipment has not met their needs. This "post-graduate" work will be discontinued at the close of this term. A special school is needed, if high-school work is to be done in a satisfactory and economical manner.

2. Without exception the boys and the boys' parents accept this modified school work with enthusiasm. In general, the girls and their parents are glad to have a more practical turn given to the school work. There has been, however, now and then, on the part of one or more girls and their mothers, objection to "so much sewing and dish-washing." In most cases the trouble has been found to lie in the fact that the work at these points was not really on a practical, worth-while basis. By placing the work in the hands of a teacher who had had more real "trade" experience the objection has disappeared. However, there may be here a real problem that should be recognized.

3. Experience so far confirms the suspicion held by many that for many of the boys and girls five hours a day spent on the study of the abstractions and the generalizations of knowledge is partly misspent. It appears to be generally true that classes and individuals are taking a higher rank in their book studies, as indicated by marks, and are showing a better understanding of these studies than they have formerly done. This phase of the matter resolves itself into the question, "How much time can a child spend efficiently on the study of books alone?"

4. The question just proposed must be carried from the "semi-industrial" school to the "regular" school. It is a sequence, perhaps, rather than a result that the supervising principal and the parents in two of the "best"sections of the city are taking up the study of the semi-industrial program, with the view of determining whether or not it is not in essence a more educational and more cultural program for all children. One of the schools in a similarly favorable district is introdu-

cing some handwork in weaving and pottery by request and partly at the expense of the "Parents' Club." The teaching is done by the regular teachers in school time.

Equipment.—It was early discovered that each "activity" must have its proper place in which its peculiar "atmosphere" could be created. For the boys there must be a wood-working room—with a place for staining and a place for machines; a room for the printing, and if metal-work were done, a special room for it with machines and a forge. For girls there are needed a kitchen, butler's pantry, and dining-room (en suite if possible), a laundry, a sewing-room with sewing-machines.

Machinery.—The introduction of machinery has been forced in the development of the plan of work. It has been found that both boys and girls are capable of using machines much earlier than it was suspected by some and it is not yet clear how far the educational needs of the children will push development in this direction.

BOSTON

North Bennett Street Industrial School.—This is a private enterprise, conducted "for educational and social improvement and for research and experiment in educational and social methods."

Full information may be found in the *Annual Reports* for 1909, 1910, 1911. These will be sent to anyone on application. They are most valuable contributions to the literature of the subject under consideration. This report is made up largely of extracts from these *Reports.*

Purpose.—The school is working to better the life of all members of the neighborhood. For children of compulsory school age it is trying:

1. To illustrate a possible modification of the upper grammar-school course which will be especially adapted to pupils who will leave school early to enter industrial pursuits.

2. To develop within the public school an increasingly vital form of manual training in several materials, sympathetically adapted to meet the fundamental instincts and interests of those to whom it applies, and so correlated with academic subjects as to cause these to function more certainly as elements in a liberal education.

3. To provide, after school hours, supplementary industrial work for members of public-school classes, and also such handwork as is adapted to children of school age or under who have no other opportunity for this training.

4. To develop spontaneous and wholesome recreational life through folk-dancing, music, and supervised play.

Foundation.—This organization was founded in 1880 and therefore has been for thirty years a pioneer in the lines of educational work enumerated.

Relation with public schools.—By arrangement with the Boston School Board sixty-five pupils, boys and girls, have been transferred from a near-by public school to this school for the last two years of their grammar-school work.

Plans are subject to the approval of the Board of Superintendents of the City of Boston. Pupils have been selected by the masters of the respective grammar schools in consultation with the director of the North Bennett Street Industrial School and the parents of the pupils. While it will be possible for these pupils to continue their education by taking a high-school course if they desire, the aim has been to select those who must go into industry early and so especially need this training. A special certificate will be issued to those who satisfactorily complete two years' work. The North Bennett Street Industrial School bears all expense of the experiment with the exception of furniture for the boys' classroom, and such of the textbooks in use in the city schools as are suitable for these classes.

COURSE OF STUDY—BOYS

First Year	Hours	Second Year	Hours
Shopwork—		*Shopwork*—	
Wood—benchwork	6	Wood-turning, benchwork, and metal-work	6
Printing	2	Printing	2
Practical mathematics	3⅓	Practical mathematics and business forms	3
English literature and composition	6	English literature and composition	2
Geography and history	3⅓	Geography, history, and civics	3
Drawing, freehand and mechanical	1⅓	Drawing, mechanical	2
Hygiene and personal habits	½	Hygiene	½
Total	22½	Total	22½

Fifteen minutes daily allowed for recess and fifteen for general exercises complete the schedule on the basis of a five-hour day.

"The industrial work consists of shopwork and printing. The most of the members of the class had not had woodwork when they entered, so it has not been found possible to deviate greatly from the usual forms of manual training. In addition to this, the pupils have done

pieces of repair-work about the building with one of their own number acting as foreman. It is the foreman's duty to keep account of each boy's time and the amount of material used, and to present at each session all data necessary for academic study. He also makes an estimate of each boy's ability and prepares a written criticism of his work. It is evident that no suitable textbooks or courses of study are available and that all the instruction involves original work and preparation on the part of the teacher.

"Arithmetic and drawing are developed in close correlation with shopwork. Much of the reading is selected from *Current Events*. The language-work, oral and written, is a discussion of current events, descriptions of shop processes, business letters, so that accuracy of speech will be appreciated. Lessons are given in spelling from lists of words occurring in the day's work. Geography is developed naturally from the shopwork to materials in use, the sources of the materials, means of transportation, and thence to the principal industries of Massachusetts and the steamboat lines and export trade from Boston. This, again, leads to the study of other countries, and questions of history and politics. The pupils are led out by observation of their own environment through the greater complexities of the industrial world, and made to feel that school work is a part of life.

"Outlines of lessons, specimens of work, lists of materials, etc., are kept on file, and copies are furnished on request. As practically none of the school systems that are attempting this form of instruction have made their material available, there has already been a considerable demand made upon us."

COURSE OF STUDY—GIRLS

First Year	Hours	Second Year	Hours
Sewing, hand and machine, simple garment making, study of materials	6	Sewing, hand and machine, simple garment making, and embroidery	6
Cooking and housekeeping	3	Cooking and housekeeping	3
Design	1	Design	1
Arithmetic	6	Arithmetic	4
Geography and history	3	Business conditions and methods	1½
Literature, composition, and spelling	4½	Civics	1½
Gymnastics and hygiene	1	Literature and composition	4½
		Gymnastics and hygiene	1
Total	22½	Total	22½

Fifteen minutes daily allowed for recess and fifteen for general exercises.

These classes, like other public grammar schools of Boston, are in session from 9 A.M. to 12 M. and from 1:30 to 3:30 P.M. daily, except Saturday, with the usual vacations and holidays.

The sewing course is planned to meet the immediate needs of the girls as the work of the year is carried on: First, cooking-uniforms, towels, holders; then undergarments, shirtwaists, dresses, curtains for the school, and shop aprons for the boys. The pupils do their own planning and cutting. Some simple drafting is done that pupils may better understand how to use the patterns they buy.

The pupils furnish their own materials, selecting and buying after some study of what is good and reliable. Each pupil keeps an account of the amount of material, cost, and time required for each garment, and marks each finished article, "Excellent," "Good," or "Fair," as she thinks it deserves.

In cooking, recipes for family amounts are used, and the pupils are allowed to do as much of the marketing as possible. Planning of menus with reference to nutriment and cost, as well as correct serving, is a valuable part of the work. The care of the house, with especial lessons in cleaning various materials, is also given a prominent place in the course.

The method of teaching has been in all subjects that of development, with direct application to the industrial work and to everyday problems. Arithmetic has been correlated with wage-earning under different conditions, calculating amounts and costs of materials, household and personal accounts and receipts, carpeting, papering, etc. History has dealt with the development and growth of industry of the different sections of the country, while geography has been the study of the raw materials that are necessary to men in the form of food, shelter, and clothing. English has probably been most closely related, as it has been used for expression of all the other subjects in forms of letters of all kinds, descriptions of excursions, and criticisms on work of all kinds.

Much interesting work has been done in making out costs of outfits in clothing for one year on the basis of a working-wage of $6.00 per week. Below is an uncorrected estimate. The girl allows $3.00 to her family; $1.50 for carfares and lunches, leaving $1.50 per week for clothing, which amounts to $75.00 per year.

OUTFIT AS PLANNED BY ONE OF THE GIRLS WITHOUT CORRECTIONS

WINTER OUTFIT

1 winter coat	$10.00	
1 hat for work	3.00	
2 prs. of shoes	4.00	
3 homemade shirtwaists $0.50 each	1.50	
2 sets of underwear, $1.00 set	2.00	
1 pr. of corsets	1.00	
3 homemade corset covers $0.25 each	.75	
4 prs. of stockings $0.20 each	.80	
1 black petticoat	.75	
2 white petticoats	4.00	
1 pr. of rubbers	.50	
1 umbrella	1.00	
1 pr. of gloves	1.00	
2 flannel petticoats	.58	
1 black outside skirt	3.50	
1 doz. handkerchiefs	.70	
Total		$35.08

SUMMER OUTFIT

2 sets of underwear	$ 2.00	
2 combination suits	1.50	
1 black petticoat	.75	
1 white petticoat	2.00	
2 corset covers $0.39 each	.78	
1 underskirt	.50	
1 summer dress	3.00	
1 pr. of shoes	2.00	
3 pr. of stockings $0.20 each	0.60	
1 pr. corsets	1.00	
1 hat	3.00	
1 spring suit	10.00	
3 homemade shirtwaists	1.50	
1 pr. of gloves	1.00	
Total		$29.63

ODDS AND ENDS

2 yds. of ribbon	$ 0.50	
2 pkgs. of hairpins	0.25	
4 neckties, $0.25 each	1.00	
Fancy pins	0.50	
4 stiff collars, 2 for $0.25	0.50	
Set of combs	1.00	
3 homemade jabots	0.30	
Total		$ 4.05
		$68.76
		75.00
For pleasure		$6.24

CLEVELAND

A report upon the Elementary Industrial School was issued by Superintendent Elson in 1910. A rather full report upon the history, purpose, and work of this same school by Professor Frank M. Leavitt may be found in the September number, 1911, of the new magazine, *Vocational Education.*

Purpose.—The school was opened in September, 1909. It received boys and girls from any school in the city recommended by the teachers and principals. They have been largely the "failures" in the regular schools. There are at present about fifty girls and one hundred and twenty-five boys from the fifth to the eighth grades. The equipment for girls' work has not been as fully supplied as that for boys' work. The purpose has been to provide a modified plan of *general* education rather than of *industrial* training.

Teachers.—Shop or trade experience has not been required of teachers. They are men for shopwork and women for girls' activities and for all academic studies, selected from the manual-training corps and from the regular teaching force because of special interest in and aptitude for the peculiar work of this school.

Curriculum—

FIRST YEAR, BOYS

DRAWING

Simple working drawing—

Freehand Sketching—Representation of simple objects, graphically and in view-drawing.

Working Drawings—Simple objects illustrating necessity for and arrangement of views. Conventions of lines, dimensions, sections, etc. Drawing to scale. Application in working drawings for the shop. Subject related closely to industry by using much illustration material, drawings, blue-prints, etc., and by visits to shops and drafting rooms.

Practical outlook—

Work as mechanical or architectural draftsmen.

Simple lettering—

Plain letters and figures used in mechanical and architectural drawing.

Application in connection with working drawings and sketches in the shop.

Composition in lettering—

Types of letters used in reference to artistic effect in spacing and in relation to margins and space to be filled. Tail pieces, line finishings, initials, illuminating, monograms.

Practical outlook—

Sign, bulletin, and placard painting as a trade.

Design—

For the development of the sense of outline, line, form, and proportion.

Application in wood- and metal-work.

Simple metal-work—

Design applied in simple objects in copper, brass, and other soft metals, particularly fittings for wood workbox corners, hinges, escutcheons, catches, drawer and door bolts, plates, surface decorations, etc.

WOODWORK

Preliminary problems—

Problems presenting systematic use of tools and general principles of construction, involved in simple projects of use and beauty, applying art principles of form and color, and correlating with metal-work, mechanical and free-hand drawing.

Commercial problems—

Problems of commercial value, such as appliances for school gardens, window boxes, bulletin boards, and frames for schoolrooms, etc., otherwise made at the repair-shop.

Finishes—

Stains, paints, and finishes studied and applied in various wood-working projects.

Business methods—

Time card, expense, and checking system, measuring, estimating, costs, bills, letters, materials, contracts, etc., correlating with English, geography, history, and mathematics, in both first and second years.

First Year, Girls

HOUSEHOLD ARTS

Aim—

The training of pupils in the subjects which pertain to life in the home.

Cookery—

Cooking of types of vegetables, cereals, the various cuts of meat, flour mixtures, instruction in the principles underlying the work, preparation and serving of meals, practice in writing menus, care of the kitchen and dining-room.

Sanitation—

Plumbing, cleaning of traps, care of the sink, refrigerator, and bathroom.

Laundry—

Washing of dishtowels and table linen.

Sewing—

Care and use of machines. Making of uniform for household science, sewing-bag, mending, hemming table linen, corset cover, shirtwaist suit.

Art—

Designs for table linen, wall paper, rugs, draperies, dishes, beauty in form of dishes and cooking utensils and fitness for use, lettering, title-pages of notebooks, illustrations for notebooks, suitable pictures for the home.

Lettering for marking articles made in sewing, textile designs, fitness of articles for their use, suitable designs for embroidery, pictures of beautiful costumes.

Household accounts—

Cost of food in the lessons, cost of meals which are prepared, cost per capita per day, cost of furnishings, textiles, clothing.

Museum—

Textiles and materials from which they are made, pictures of looms, spinning wheels.

Class visits—

Markets, stores, factories, and shops.

Correlation—

All of the work is correlated with English, geography, history, and mathematics, in both first and second years.

Second Year, Boys

first term

Work as outlined for the first year continued.

second and third terms

Full time for industrial work (about eighteen three-quarter hour periods each week) may be devoted to specialization in one of the following subjects: mechanical drawing, printing, cabinet making, pattern-making, building construction.

Class visits—

After class talks and discussions, visits to drafting-rooms, buildings in the process of construction and finish, to cabinet shops, paint manufactories, printing-offices, pattern-shops, etc.

Second Year, Girls

household arts

Cookery—

Preservation of food: canning of peaches, pears, tomatoes, jelly, sterilization. Preparation of such combinations of food as could be used for a meal.

Soups, bread, salads, simple desserts, preparation and serving of meals, infant-feeding, invalid cookery. Practice in writing menus.

Sanitation—

Review of first-year work.

Laundry—

Hard and soft water, action of alkalies, making of soap, preparation of starch, removal of stains, washing and ironing of various textiles.

Home nursing—

Making a bed, care of sickroom, simple treatment of cuts and burns.

Sewing—

Making of drawers, nightgowns, dresses of wash materials. Emphasis is placed upon increase in speed.

Art—

Household decoration and furnishing. Colors and materials suitable for the various rooms and uses in a home. Study of the principles underlying artistic construction in dress. Study of historic examples of dress.

Mechanical drawing—

Working drawing for anything needed for the kitchen, such as table, drain board for sink, shelf or drawer for pantry, accurate measurements for windows for window fixtures, drawing to scale of windows.

Household accounts—

Cost of food, fuel, service, rent. Typical family budgets.

Class visits—

Markets and house-furnishing shops.

Economic value—

The use which the woman makes of money in the home is of equal importance to the acquiring of the money. "It is the present duty of the economist to magnify the office of the wealth expender, to accompany her to the very threshold of the home, that he may point out its woeful defects, its emptiness, caused not so much by lack of income as by lack of knowledge of how to spend wisely."

ST. PAUL

The St. Paul Special Industrial Schools have been in operation since 1908. They are for boys exclusively and are located one in each geographic district of the city.

Purpose.—Quoting from Superintendent Heeter's report: "They are special schools for boys who cannot be expected to complete the regular grammar-school course." "Boys come from the fourth, fifth, sixth, and seventh grades." "No boy under fourteen years is admitted." "The elementary industrial school takes pupils that cannot be expected to complete the common schools and endeavors to give them a sort of finishing course before they go to work." Boys may prepare for certain courses in the high schools and a few have done so.

Teachers.—Two men teachers take charge of thirty boys—one teacher for the shop and the other for the academic schoolroom adjacent. These men are graduates of the normal schools of the state with special aptitudes for this work.

Curriculum.—The industrial work is largely wood-working, carried into cabinet making and elementary physics. The course of study is arranged to cover three years.

Each school consists of only three classes, with an average of about ten to the class, known as first-year, second-year, and third-year boys.

"Each day is divided into six periods and each class spends one period in supervised study, another in recitation, and another in the shop. As

indicated above, their studies are limited to reading, writing, spelling, and arithmetic. The reading lessons are almost entirely industrial, geographic, and historical in their character, and the reading period is frequently used as a language period. The arithmetic runs at times toward simple accounts and business forms and elementary bookkeeping. Occasionally an entire half-day is spent by the entire room of thirty boys under the direction of both men in an observational study of some trade or occupation. As a rule, arrangements are made in advance by the teachers with some blacksmith, carpenter, electrician, manufacturer, foreman, etc., and the boys are given every attention possible."

NEWARK

The history and general plans of the elementary vocational work in Newark are discussed by Superintendent Poland in his school report of 1909–10. Boys are sent to one building from different schools in the city. Girls are not provided for. "The school has attracted the dull boy, but it does not cater to him." The school is about two years old.

Purpose.—Dr. Poland states in his report: "There are two things which I hope to see accomplished a little later that may make it easier to retain these boys in school: (*a*) their superiority as apprentices over boys otherwise trained, and (*b*) their ability to advance more rapidly as apprentices and hence obtain higher remuneration because of the training received in this school. When it becomes known that this school offers to a certain class of boys advantages that cannot be had in the regular grades its career of greatest usefulness will have begun."

Teachers.—Men are in charge of the shopwork, selected because of successful trade experience supplemented by technical and teaching training. Women are in charge of the academic studies selected because of conspicuously successful experience with and because of their interest in this class of boys.

Curriculum—

FIRST YEAR

Shopwork	825	minutes	per	week
Drawing	275	"	"	"
English subjects	275	"	"	"
Arithmetic	220	"	"	"
Ind. geography	55	"	"	"

SECOND AND THIRD YEARS

Shopwork	825	minutes	per week
Drawing	275	"	"
English subjects	275	"	"
Arithmetic	220	"	"
Science	55	"	"

Shopwork is given in the following order: Carpentry, metal-work, pattern-making, foundry practice, electrical wiring, printing, and electrical construction. Pupils who do not wish to take the electrical construction in the graduating class may specialize in any other line of shopwork.

The drawing does not correlate in detail with the shopwork but follows a sequence of its own. This method eliminates repetition and insures a stready advance.

The English work includes oral and written composition, spelling, and penmanship. It is directly correlated with the different branches of shopwork.

Arithmetic is treated from the shop side after the fundamentals have been thoroughly mastered.

Science work deals with the properties of matter, heat, light, sound, electricity, and mechanics.

A high standard of efficiency is maintained throughout all classes.

Product that has been completed is the property of the Board of Education.

The school places its graduates in positions suitable to their ability and inclinations. This feature of vocational guidance was successfully started last July, when seventeen out of twenty-one graduates were placed in positions. The remaining graduates entered high school or moved from the city.

Two lines of industrial work call for special mention, the pattern-making and elementary tool-making. A foundry room in the basement gives an opportunity to apply the pattern in the process of casting. In the toolroom two forges make it possible to give practice in tempering and welding. The tools are made of sheet iron by the use of the regular iron-working tools of this trade.

The value of industrial training for the teachers of the industrial activities was evident throughout this school.

SUMMARIES

All the industrial activities found in the elementary industrial schools here considered are tabulated below. The letters opposite each activity indicate the cities in which they are found: B., Boston; C., Cleveland; I., Indianapolis; N., Newark; S., St. Paul.

ACTIVITIES

Boys	Girls
1. WOOD-WORKING	1. SEWING
(B.C.I.N.S.) Carpentry	Plain (B.C.I.)
(B.C.I.N.S.) Joinery	Dressmaking (B.C.I.)
(B.N.) Wood-turning	Art needle-work (B.C.I.)
(N.) Pattern-making	
(C.) Cabinet-making	
(C.N.) Building construction	
(B.C.I.) Repair-work	
2. METAL-WORKING	2. COOKING AND HOUSKEEPING
(B.C.I.) Art metal	(B.C.I.)
(N.) Tool-making	
3. PRINTING	3. WEAVING
(B.C.I.N.)	(I.)
4. ELECTRICAL WORK	4. MECHANICAL DRAWING
(B.N.)	(B.C.I.)
5. CLAYWORK	5. SPECIAL ART TRAINING
(B.)	(I.)
6. BOOK-MAKING	
(I.)	
7. MECHANICAL DRAWING	
(B.C.I.N.S.)	
8. SPECIAL ART TRAINING	
(I.)	

Agreement.—In some particulars all the schools under consideration are in agreement. One point of agreement is in the "call" for the industrial activity, or to put it differently, in the schoolman's motive for introducing industrial activities into the elementary-school grades. The most fundamental motive appears to lie in the unmet need of the

boy and girl who does not or cannot find education and culture (assuming that these two words are not synonymous) through and by books alone.

A second point of agreement is in the choice of material for educational purposes. The uniform reasoning seems to have been this: "If a child's mind does not react by dealing with the abstract and the symbol —let us try the reality." With the disappointing experiences in manual training, school cooking, and schoolroom nature-study fresh in mind and influenced by the growing demands of the industrial world, it was natural that *industrial activities* should loom large in the minds of all who were studying the unsuccessful school child.

A third point of agreement is the introduction of a secondary aim in elementary training. While all agree that the primary purpose of all elementary training should be general education, it is believed that a secondary aim of vocational preparation is as legitimate as a secondary aim of high-school preparation, and that the practical recognition of this secondary aim need not interfere with the fullest realization of the primary aim.

A fourth point of agreement lies in the conviction that the book is indispensable in any form of elementary training, that at least half-time should be given to the book, but that the book and the activity should be so related as to vitalize each other.

A fifth point of agreement relates to method and to quality of industrial product. It is agreed that both should be those of the trades of which the activity is a part. School practice should be "shop practice" as far as is practicable. However, there appears to be a universal conviction that in this elementary field the educational values must always dominate rather than the industrial values.

A sixth point of agreement is that the elementary industrial courses must be so planned that a boy or girl completing them may at his option enter advanced courses of study or enter industrial life.

A seventh point of agreement is that these children need educational or vocational guidance when they pass out from the elementary course and that they need opportunities for continued education if they enter the industries.

The beginnings of this departure in school practice were alike in all cases. Some conveniently located building was converted into a special school to which boys and in some cases girls also were invited from the

entire city. At first the overaged, the mentally slow, formed the school membership. The quality of pupils is, however, improving.

The courses of work are planned to cover two or three years, the last two years of the grammar grades, although overaged, overgrown, and unsuccessful children are taken rather freely from the sixth and in some instances from the fifth grade.

In general the industrial activities selected are the same in all schools, namely, those most fundamental in the world's industrial life. There is, however, at each school an experimental attitude. The North Bennett Street Industrial School in Boston, being primarily an "experimental station," has tried out a larger number of activities than have other schools. The work in Newark in pattern-making and tool-making are suggestive of this experimental attitude.

Differences.—There are several points at which there is not exact agreement.

There is a difference in the degree of vocational emphasis. This emphasis appears to be greater in Newark and least in Indianapolis. Indianapolis and the North Bennett Street Industrial School seem to be more at one at this point, while Cleveland and St. Paul are more closely allied with Newark. These three schools are separate schools to which selected pupils are sent, all boys, except in case of Cleveland. In Indianapolis six regular schools are following the industrial plan, boys and girls, in all about seven hundred children.

Cost.—The cost of this plan of work will of necessity be greater than that of the sedentary, exclusively book plan. It would appear also that the cost will increase with the vocational emphasis, for this emphasis carries with it a larger variety of activities, a more varied and complete mechanical equipment, and more highly trained and more thoroughly experienced teachers.

DEDUCTIONS

1. The elementary industrial plan of education requires for its success a school building constructed for it. A conventional schoolhouse will not do. Each activity should have its room or rooms built for that particular activity.

2. "When a manual activity becomes merely manual labor it ceases to be an educating activity. At this point a labor-saving tool or machine must be introduced." This statement was made to the writer a year

ago by Mr. Robert Himelick who is in charge of one of the industrial centers in Indianapolis. If it is, as it appears to be, a principle inherent in this plan of education it will determine the amount and variety of machinery that must be made a part of shop equipment.

3. "A boy between the ages of fourteen years and eighteen years is potentially at his best as a mechanic. That is, during these years he can with a minimum amount of training turn out a finer mechanical product than he can in later life." Superintendent Poland has made this generalization. He is the first to state it so far as the writer knows. It exerts an important influence in standardizing the work of his school. If this shall be found to be a principle, it cannot but profoundly influence all educational practice in the upper elementary and lower high-school grades.

CONCLUSIONS

The problems involved in educating girls by the elementary industrial plan are not as yet either so successfully worked out or as fully worked out as are those for boys.

The least successful part of the plan is the interrelation of the book and the activity. In no place, so far as the writer knows, is this interrelation much more than an ambition. It is not yet entirely clear how far this interrelation may be carried with profit.

It is becoming evident that the influence of the industrial plan of elementary education is destined to be considerable on both "manual training" in general and on all elementary education.

This form of education will not eliminate all the "failures" from the schools, but it is diminishing their number. For many children school has been a place where they have been trained to bear defeat unresistingly. For a growing number of them the elementary industrial school has become a place where they are taught how to attain success.